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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,873	09/12/2003	Michael Alex	KOM004-2C US	8666

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EXAMINER	
DAVIDSON, DAN	
ART UNIT	**PAPER NUMBER**
2627	

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/660,873	ALEX, MICHAEL	
	Examiner	Art Unit	
	Dan I. Davidson	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,33-57,61-65,70,71,77 and 83-91* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *71,77,83,84 and 86-88* is/are allowed.

6)☒ Claim(s) *1,33,35-52,54-57,61-65 and 70* is/are rejected.

7)☒ Claim(s) *34,53,85 and 89-91* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed February 17, 2006 has been received and has been made of record. An Office Action in response to the above amendment follows. Since this Action contains new rejections not necessitated by amendment, this Action will not be final. The Examiner apologizes for the late nature of the rejections.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 35-52, 54-57, and 61-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (US 5,923,485 A) in view of Ohwe et al (US 2001/0043439 A1).

Re claims 1, 35-37, 42-43, 52, 56-57, 61-63, and 65; Ito discloses a method for storing data on a magnetic disk, the method comprising: writing the data to the magnetic disk so as to cause spontaneous degradation of the data over time (i.e. at least a portion of the data is written to a group of grains in a track at a density sufficiently high to cause a change in the direction of magnetization of at least some of the grains with passage of time) (col. 7, lines 22-28; Fig. 7; weakening of the recorded magnetization given no operation conducted by the host side is inherently a result of a change in direction of magnetization of at least some of the grains); automatically reading the data periodically (col. 9, lines 5-7; the periodic reading of the refresh indicator (reference signal) is itself a refresh indicator, namely a timing signal indicating that a potential

refresh is in the offing); generating a refresh indicator and recording the refresh indicator (col. 9, lines 3-5 (amplitude); col. 11, lines 11-13 (time)); checking if the refresh indicator satisfies a predetermined condition related to degradation of the data over time (col. 9, lines 7-13 (amplitude); col. 11, lines 15-18 (time)), namely that it has fallen to at least 88% of its original amplitude (col. 9, lines 11-13; this also satisfies the limitations at claims 42 and 56); and writing the data a second time (i.e. refreshing the data) only if the predetermined condition is satisfied (col. 9, lines 13-18).

Ito does not disclose that the spacing between adjacent magnetized locations of the magnetic disk is smaller than 50nm whereby the data for a recording density is written at greater than 500 kFCI. There is only one limitation here since where the spacing is smaller than 50nm, the recording density is greater than 500 kFCI (Applicant's specification, page 6, lines 29-30). Ohwe et al teach that based on their invention a signal of 200 MHz can be written in a magnetic disk (paragraph 27, last 5 lines). As stated by Applicant, the linear density is four times the write frequency (page 6, lines 3-6). Thus, Ohwe et al is teaching a linear density of 800 kFCI, thereby satisfying the above limitation.

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to use the linear density of Ohwe et al in Ito; motivation being increased recording density.

Re claims 38 and 54; Ito discloses writing the refresh indicator to a location in the storage medium distinct from another location used to write data (col. 9, lines 2-5; "a

predetermined reference signal is recorded in *part of the disk device* in advance). This could encompass storing the attribute in a directory entry of a file system.

Re claims 39, 40, and 55; Ito discloses using a date of performance of "the writing the data to the storage medium" to determine the refresh indicator, wherein: the refresh indicator is set to be the date; and the predetermined condition is satisfied when the refresh indictor is older than a current date by a predetermined time period (col. 11, lines 47-52 and 63-67).

Re claim 41; this claim presents a method that is functionally and mathematically equivalent to the method of claim 40, the only difference between the claims being the order of equivalent mathematical operations. This difference boils down to design choice without unexpected results and thus the method of claim 41 is not distinct from the method of claim 40.

Re claims 44-46; the limitations at this claim are satisfied based on that discussed above with respect to claims 1 and 38.

Re claims 47 and 64; it is implicit from the fact that the copy control circuit is started one year after specific information was written in the storage medium that the checking is performed periodically without scanning the entire storage medium (col. 11, lines 53-55).

Re claim 48; Ito discloses that the refresh indicator is saved contemporaneous with the writing (col. 9, lines 13-15).

Re claims 49-51; Ito discloses that the "automatically reading the data" and the "writing the data a second time" are both performed periodically on a schedule (col. 9, lines 2-18).

4. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (US 5,923,485 A) in view of Ohwe et al (US 2001/0043439 A1) as applied to claim 1 above, and further in view of Takahashi et al (US 2002/0155322 A1).

The combination of Ito and Ohwe et al discloses / teaches the limitations at claim 1 as discussed above.

The combination of Ito and Ohwe et al does not disclose or teach the limitation drawn to the grain diameter being below 100 Angstrom (i.e. 10nm). Takahashi et al (US 2002/0155322 A1) teach this limitation (page 8, paragraph 102).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to have a grain diameter below 100 Angstrom in Ito; motivation being having a higher medium signal-to-noise ratio (paragraph 102).

5. Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (US 5,923,485 A) in view of Takahashi et al (US 2002/0155322 A1). See the rejections of claims 1 and 33 above.

Allowable Subject Matter

6. Claims 71, 77, 83-84, and 86-88 are allowed over the prior art of record.

Re claim 71; the prior art of record, and in particular Ito (US 5,923,485 A), fails to teach or suggest that a transition in polarity between neighboring magnetized portions is less than 250 Angstrom.

Re claim 77; the prior art of record, and in particular Ito (US 5,923,485 A), fails to teach or suggest that the refresh indicator indicates that the information in the magnetic disk contains a soft error.

Re claim 83; the prior art of record, and in particular Ito (US 5,923,485 A), fails to teach or suggest that at least one of the refresh indicators is related to a high-frequency component of a readback signal.

Re claim 84; the prior art of record, and in particular Ito (US 5,923,485 A), fails to teach or suggest that at least one of the refresh indicators is related to a number of errors.

Re claim 86; the prior art of record, and in particular Ito (US 5,923,485 A), fails to teach or suggest that the refresh indicator is stored on the magnetic disk at a lower density than the portion of the information.

7. Claims 34, 53, 85, and 89-91 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Re claim 34; the prior art of record, and in particular Ito (US 5,923,485 A), fails to teach or suggest writing the data to the storage medium with an energy ratio below 50 KuV/KBT at room temperature.

Re claim 53; the prior art of record, and in particular Ito (US 5,923,485 A), fails to teach or suggest that the refresh indicator is stored as an attribute of the file.

Re claims 85 and 89-91; the prior art of record, and in particular Ito (US 5,923,485 A), fails to teach or suggest that the refresh indicator is stored at a lower density than the data (portion of information).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan I. Davidson whose telephone number is (571) 272-7552. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea L. Wellington, can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DID
Dan I Davidson
May 15, 2006

ANDREA WELLINGTON
SUPERVISORY PATENT EXAMINER